

## CONTENTS

## NUMBER 1

M. F. ATIYAH and R. BOTT: The moment map and equivariant cohomology . . .	1
ROBERT BROOKS and CAROLINE SERIES: Bounded cohomology for surface groups . . .	29
W. MENASCO: Closed incompressible surfaces in alternating knot and link complements . . . . .	37
ISAO NAKAI: On topological types of polynomial mappings . . . . .	45
FLORIS TAKENS: Moduli of singularities of vector fields. . . . .	67
JOE HARRIS and LORING W. TU: On symmetric and skew-symmetric determinantal varieties . . . . .	71
GUNNAR CARLSSON: A simplicial group construction for balanced products. . .	85
C. KEARTON: Simple spun knots . . . . .	91
PAUL SELICK: 2-Primary exponents for the homotopy groups of spheres . . .	97
MASAHIKO SUZUKI: The stratum with constant Milnor number of a mini-transversal family of a quasihomogeneous function of corank two . . . . .	101
W. FLOYD and U. OERTEL: Incompressible surfaces via branched surfaces . . .	117

## NUMBER 2

ITIRO TAMURA: Unknotted codimension one spheres in smooth manifolds . . .	127
KEN'ICHI KUGA: Representing homology classes of $S^2 \times S^2$ . . . . .	133
W. G. DWYER and D. M. KAN: A classification theorem for diagrams of simplicial sets . . . . .	139
HANS-WILLI SIEGBERG: A remark on a theorem of Shub and Sullivan. . . . .	157
ETHAN D. BLOCH, ROBERT CONNELLY and DAVID W. HENDERSON: The space of simplexwise linear homeomorphisms of a convex 2-disk . . . . .	161
RALPH L. COHEN and PAUL GOERSS: Secondary cohomology operations that detect homotopy classes. . . . .	177
WILLIAM JACO and ULRICH OERTEL: An algorithm to decide if a 3-manifold is a Haken manifold . . . . .	195
MARTIN SCHARLEMANN: The four-dimensional Schoenflies conjecture is true for genus two imbeddings . . . . .	211
M. KRECK: Manifolds with unique differentiable structure . . . . .	219
TAKASHI TSUBOI: Foliated cobordism classes of certain foliated $S^1$ -bundles over surfaces . . . . .	233
KIYOSHI IGUSA: On the homotopy type of the space of generalized Morse functions . . . . .	245

## NUMBER 3

Publisher's Notice to Authors and Subscribers . . . . .	i
TIM COCHRAN: Embedding 4-manifolds in $S^5$ . . . . .	257
ROBERT BRUNER: A new differential in the Adams spectral sequence . . . .	271
MAKOTO YAMAMOTO: Classification of isolated algebraic singularities by their Alexander polynomials . . . . .	277
TADEUSZ JANUSZKIEWICZ: Characteristic invariants of noncompact riemannian manifolds . . . . .	289

Y. LADEGAILLERIE: Classes d'isotopie de plongements de 1-complexes dans les surfaces . . . . .	303
ANDREW J. NICAS: On $Wh_2$ of a Bieberbach group . . . . .	313
NICOLAAS H. KUIPER: Taut sets in three space are very special . . . . .	323
RONALD BROWN: Coproducts of crossed $P$ -modules: applications to second homotopy groups and to the homology of groups . . . . .	337
SHMUEL WEINBERGER: Constructing homotopy equivalences . . . . .	347

## NUMBER 4

DAVID GABAI: Foliations and genera of links .....	381
ROBERT E. GOMPF: Infinite families of Casson handles and topological disks.....	395
F. R. COHEN: Two-primary analogues of Selick's theorem and the Kahn–Priddy theorem for the 3-sphere .....	401
HARRIE HENDRIKS and FRANÇOIS LAUDENBACH: Diffeomorphismes des sommes connexes en dimension trois.....	423
BOHUMIL CENKL and RICHARD PORTER: Lazard completion of a group and free differential graded algebra models over subrings of the rationals .....	445
YOSHIHIKO MITSUMATSU: Bounded cohomology and $l^1$ -homology of surfaces .....	465
NICHOLAS J. KUHN: Extended powers of spectra and a generalized Kahn–Priddy Theorem .....	473

## AUTHOR INDEX

- Atiyah, M. F. 1
- Bloch, E. D. 161  
Bott, R. 1  
Brooks, R. 29  
Brown, R. 337  
Bruner, R. 271
- Carlsson, G. 85  
Cenkl, B. 445  
Cochran, T. 257  
Cohen, F. R. 401  
Cohen, R. L. 177  
Connelly, R. 161
- Dwyer, W. G. 139
- Floyd, W. 117
- Gabai, D. 381  
Goerss, P. 177  
Gompf, R. E. 395
- Harris, J. 71  
Henderson, D. W. 161  
Hendriks, H. 423
- Igusa, K. 245
- Jaco, W. 195  
Januszkiewicz, T. 289
- Kan, D. M. 139  
Kearton, C. 91
- Kreck, M. 219  
Kuga, K. 133  
Kuhn, N. J. 473  
Kuiper, N. H. 323
- Ladegaillerie, Y. 303  
Laudenbach, F. 423
- Menasco, W. 37  
Mitsumatsu, Y. 465
- Nakai, I. 45  
Nicas, A. J. 313
- Oertel, U. 117  
Oertel, U. 195
- Porter, R. 445
- Scharlemann, M. 211  
Selick, P. 97  
Series, C. 29  
Siegberg, H.-W. 157  
Suzuki, M. 101
- Takens, F. 67  
Tamura, I. 127  
Tsuboi, T. 233  
Tu, L. W. 71
- Weinberger, S. 347
- Yamamoto, M. 277